

Notes on *Fusinus harfordii* STEARNS (Mollusca: Gastropoda)

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OBSERVATIONS AND EXPERIMENTS carried out during 1964 and 1965 indicate that *Fusinus harfordii* STEARNS, 1871, is not only a nocturnal intertidal mollusk, but has soft parts which are somewhat luminescent. These observations and field experiments were made at Point Delgada, Humboldt County, California (Lat. 40° 01' 17" N: C. & G. S. Chart No. 5773, Shelter Cove, Rev. Aug. 26, 1963).

On the 1964 trip no special equipment was taken into the field and observations were made *in situ*. However, in 1965 a one-gallon cast-glass aquarium was available, and several plastic containers were utilized to bring fresh supplies of sea water to the camp. Rocks were taken from the reef and placed in the tank to provide the animals a more natural substrate. With this simple equipment it was possible to maintain the animal alive and active for several hours. The defects of such equipment are: the tank is too small; there is no device to keep the water cool and to aerate it; because the aquarium was of cast glass, photography through its walls was impossible. The sea water in the container soon became warm and unless it was frequently replaced the animals became sluggish within a short time.

Specimens of *Fusinus* were collected and observed on August 6 and 7, 1964, in a narrow surge channel seaward and just north of Point Delgada. The first of the two tides each day occurred just before daybreak and visibility, consequently was limited. The snails were seen at some distance (10 to 12 feet) and were quite exposed, situated, as they were, on the nearly vertical faces of the surge channel and on the tops and sides of exposed rocks in the channel. It was easy to pick out the animals as there was a weak, yet definite glow in the rose-pink soft parts which were extended at the time. During the second tide there was sunlight on the reef. The mollusks were then found hidden in deep crevices amid the rocks.

On May 30/31, 1965 the small aquarium was used and further and more detailed observations were made, both in the same surge channel and at camp. Again, the first tide occurred very early in the morning and the light was the usual soft neutral grey of pre-dawn. One specimen was noted under water and across the surge channel at a distance of about ten feet. The faint pinkish glow was quite noticeable in the dim light. A second snail was located by the same means in two feet of water. Both were placed in the tank at camp. As the light, in the meantime, had become quite bright, the two snails sought shelter under the loose rocks in the aquarium. When the tank was transferred into the dim light of a tent, the animals became more active and moved out onto the tops of the rocks; again the soft parts showed a weak luminescence. This same experiment was repeated several times; the glow in the flesh however, became progressively weaker as the water warmed, or the animal weakened.

The second low tide was during complete daylight with a strong sun. One snail was found, hidden in a deep crevice covered with algae. The same experiment was repeated and basically the same results were obtained, although not to as full an extent as on the first day. This, possibly, was the result of the day being very sunny and there being little fog; possibly also because the work was carried out more than an hour later than on the previous day.

Further study of this luminescence of the soft parts of *Fusinus harfordii* is needed in order to establish if it is due to some regional influence (diet?), time of day, water temperature, or some other factor not considered at this time. Observations are also desirable on other members of the same genus to ascertain if they too exhibit this same trait.

